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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,336	03/28/2001	Daniel F. Graves	P96040US1A/FIR 2 0020	4242

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EXAMINER
LU, C CAIXIA

ART UNIT	PAPER NUMBER
1713	

DATE MAILED: 07/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/819,336	Applicant(s) GRAVES ET AL.
	Examiner Caixia Lu	Art Unit 1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 June 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 6-23* is/are pending in the application.

4a) Of the above claim(s) *8 and 11-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,6,7,9,10 and 21-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *9* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-3, 6, 7, 9, 10, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hudson (US 3,791,888) for the same rationale as set forth in the previous office action, Paper No. 7.

Response to Arguments

3. Applicant's arguments filed on June 5, 2003 have been fully considered but they are not persuasive.

Applicants argue: "although Hudson discloses that the polymer may be reacted with carbon dioxide, the resultant CO_2^- groups is then neutralized by immediately proto[i]nating the polymer to provide a COOH terminal acid group (col. 4, line 57). Thus, Hudson does not teach a carboxylate (CO_2^-) terminated polymer as claimed in the present invention, but rather an acid terminated polymer."

The examiner disagrees. In lines 47-59 of col. 4, Hudson teaches that the terminally reactive polymers can be treated with carbon dioxide and thereafter hydrolyzed to provide a COOH termination. A skilled artisan would have understood that the carboxylate terminated polymer is formed when the terminally reactive polymers is treated with carbon dioxide as the intermediate product here. The examiner agrees that Hudson's intermediate product of carboxylate terminated polymer is hydrolyzed to provide the final product of COOH terminated polymer, however, it is Hudson's

intermediate product of carboxylate terminated polymer which reads on the instant claims.

Applicants also argue that "there is no indication that the polymer disclosed in Hudson is a baleable polymer".

Hudson teaches a process for the preparation of a polymer of a conjugated dienes by anionically polymerizing conjugated dienes such as butadiene and optional vinyl-substituted aromatic compounds such as styrene in the presence of organolithium initiator and terminating the polymerization with excess amount of carbon dioxide (col. 3, lines 12-33 and Example 1) to provide a carboxylate terminated polymer. Hudson expressly teaches that semisolid and solid terminally reactive polymer can be prepared having molecular weight up to 150,000 or higher (col. 4, lines 32-36). Before hydrolyzation, Hudson's intermediate product of carboxylate terminated polymer reads on the carboxylate terminated polymer of the instant claims. A skilled artisan would have realized that Hudson's intermediate product of carboxylate terminated polymer has substantially similar molecular weight to the final product. The molecular weight of the intermediate product is about to be:

--(the molecular weight of the COOH terminated final polymer product) - (the molecular weight of hydrogen) + (the molecular weight of the counter metal cation of the COO^- group)--

Therefore, one would have expected Hudson's intermediate product of carboxylate terminated polymer to have molecular weights up to about 150,000 or higher. A skilled artisan would have also expected Hudson's intermediate product of carboxylate

terminated polymer with molecular weights about 150,000 to have a bulk viscosity and solution viscosity in the ranges of the instant claims because the molecular weight of Hudson's polymer is in the range of that of the instant claims and the viscosity properties are determined by the molecular weight. Thus, Hudson's intermediate polymers with molecular weights higher than 150,000 are expected to be baleable. Applicants' comparative results listed in Table I does not apply to Hudson's polymer because Hudson's polymers have either -COOH or $-COO^-Li^+$ termination while the comparative examples of Table I are based on -H and $-COO^-Li^+$ terminated polymers.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (703) 306-3434. The examiner can normally be reached on 9:00 a.m. to 3:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1193.

Caixia Lu, Ph.D.
Primary Examiner
Art Unit 1713

CL
July 9, 2003